REPORTS OF THE SWEDISH DEEP-SEA EXPEDITION. VOL. V
SEDIMENT CORES FROM THE EAST PACIFIC

PART 2

DESCRIPTION OF THE SEDIMENT CORES

BY

GUSTAF ARRHENIUS

APPENDIX:
DESCRIPTION OF PLATES
PLATES 2,6.1 — 2.62

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Description of plates

Grid. Each horizontal line in the grid indicates a sample. In order to facilitate horizontal comparison, some of the horizontal grid lines have been drawn heavy (usually with appr. one m intervals or at boundaries of certain strata). In some instances, e. g. in core 39, certain levels have been shaded for the same reason.

Special samples extracted from structures, which are not regarded as stratigraphically significant, e. g. reduction bodies, coprolithic cavities and chert laminae, are indicated by open circles, free from the curves. The depth scale indicates the distance from the present top of the core to the sample level, ignoring the loss of the top layer caused by the penetration of the corer. In cases where a short open tube core completes the sequence, the diagram corresponding to the short core (surface layer) has been placed above the diagram corresponding to the long core.

Hue. The OSTWALD Farbkreis is divided into 24 hues. Of these practically only hues 1—6 occur in the sediments. 1 corresponds to greenish yellow, 2 to yellow, 3 to reddish yellow, 4 to orange, 5 to orange red, and 6 to red. A few chalk ooze strata, e. g. in core 61, which are nearly pure white, are estimated to have a faint tint of hues 14 and 15 (blue).

Blackness. In the OSTWALD scale the blackness ranges from *a* (white) to *p* (black).

Shade. The shade indicates the amount of colour in relation to the amount of black and white. The shades range from *a* (grey scale) to *p* (pure colour).

$CaCO_3$ and *rac $CaCO_3$*. The full curve indicates the percentage of carbonates expressed as $CaCO_3$. Clay strata are shown black, marl ooze (and the single case of marly radiolarian ooze) shaded, and chalk ooze white.

Where a dashed curve occurs, this indicates the rac of $CaCO_3$ according to the scale at the lower end of the column.

Stage and substage numbers are indicated in columns $CaCO_3$ and P_2O_5.

Percentage of clay as calculated from the titanium concentration is indicated by the curve TiO_2 in core 58—62 if the scale at the lower end of the column is used.

ΣTiO_2 is indicated by the scale on the ordinate axis of the diagram TiO_2.

Titanium age expressed in ten thousands of years is indicated to the right of the titanium curve.

Rac of biogenous silica is indicated by the dashed curve in the column *Biogenous silica*. The scale is found at the bottom of the column.

Benthonic foraminifera. The concentration is given as the percentage of the number of planktonic foraminifera. The percentage of benthos can thus attain any value, also above 100 %.

Globigerina. No special indication is made when the fauna is dominated by *Globigerina* species. The percentage values refer, as in other planktonic groups, genera and species, to the planktonic foraminiferal fauna.

Globorotalia menardii + tumida. The percentage is indicated in the column *Globorotalia* %. Shaded surface indicates dominance of this species or species group.

Pulleniatina obliquiloculata. Dominance of this species is indicated by a shaded area.

Sphaeroidinella dehiscens + *Sphaeroidina bulloides.* The latter species never rises higher than a few percent of the planktonic fauna. Dominance of the former species is indicated by a shaded area.

Rac of radiolaria is indicated by dashed curve in the column *Radiolaria.* Scale at lower end of the column.

Nitrogen, present as ammonium, is indicated by dashed line in cores 40 and 54. Scale at the bottom of the column.

Rac of C, N, and P_2O_5 is indicated by dashed curves in columns C, N, and P_2O_5. Scale at the bottom of these columns.

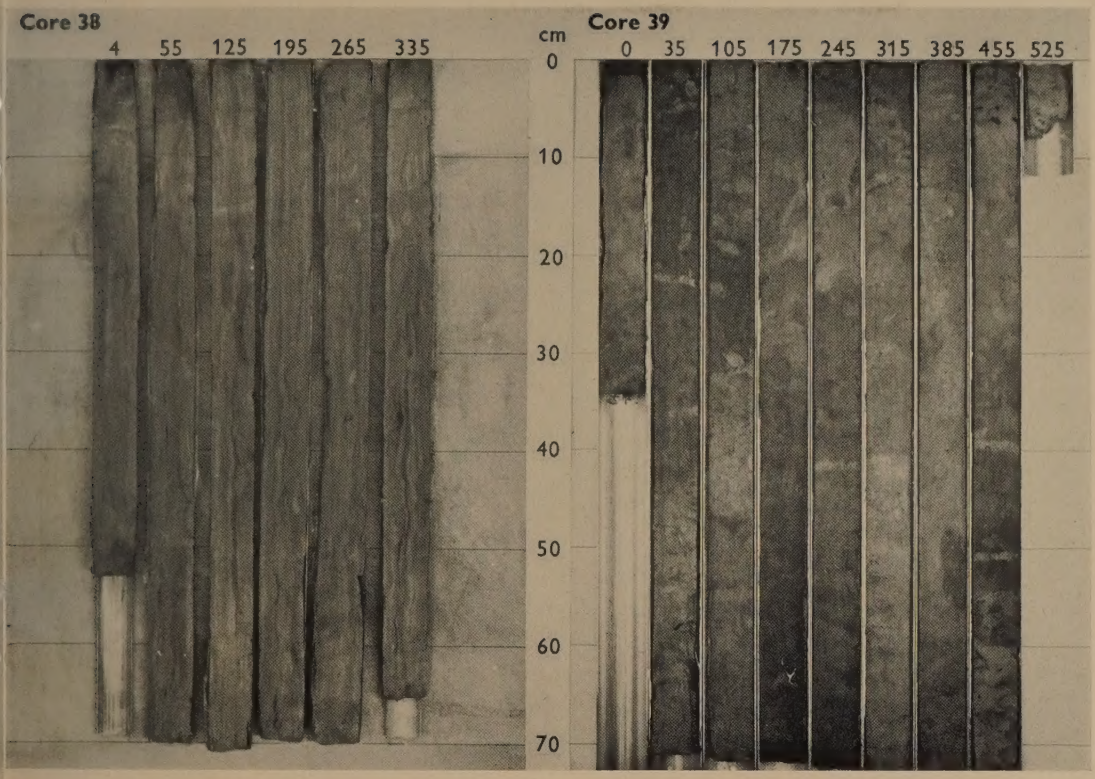
100(log H) indicates the logarithm of the shearing strength, multiplied by 100. As a reference has been inserted the average for core 51 (dashed line), calculated by the method of least squares.

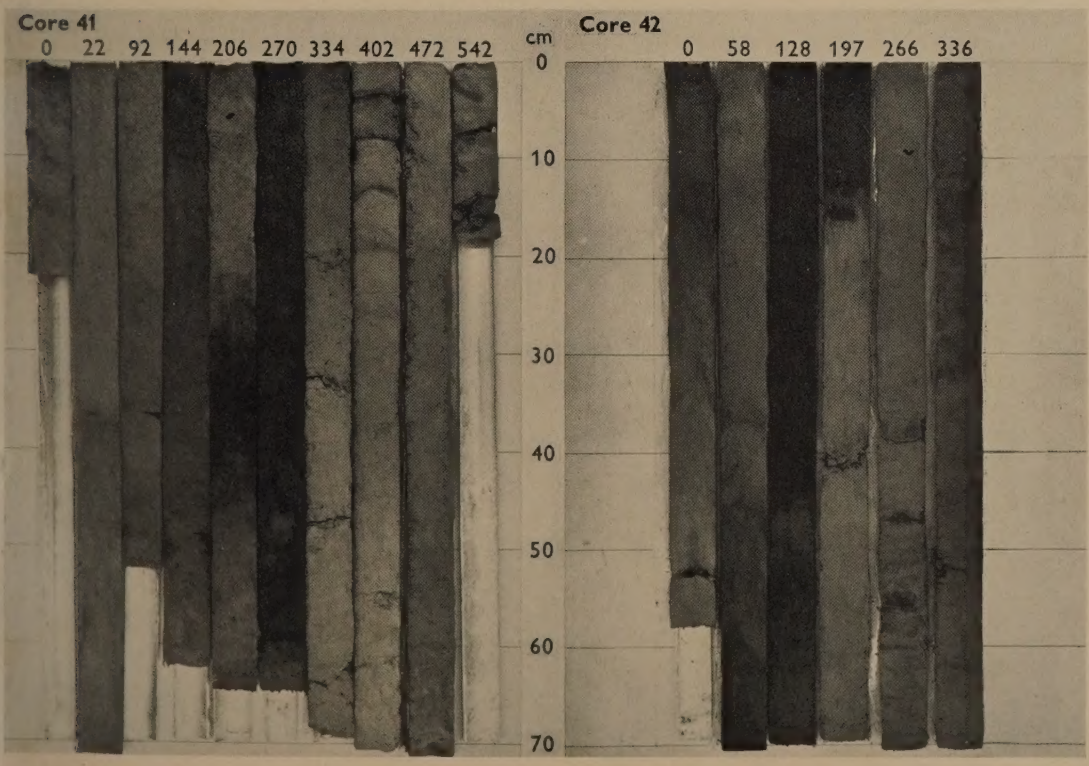
Fish teeth and annelide jaws, sponge spicules, »mollusc fragments», glass and palagonite, manganese nodules and »other mineral grains» are all expressed as number per gram sediment.

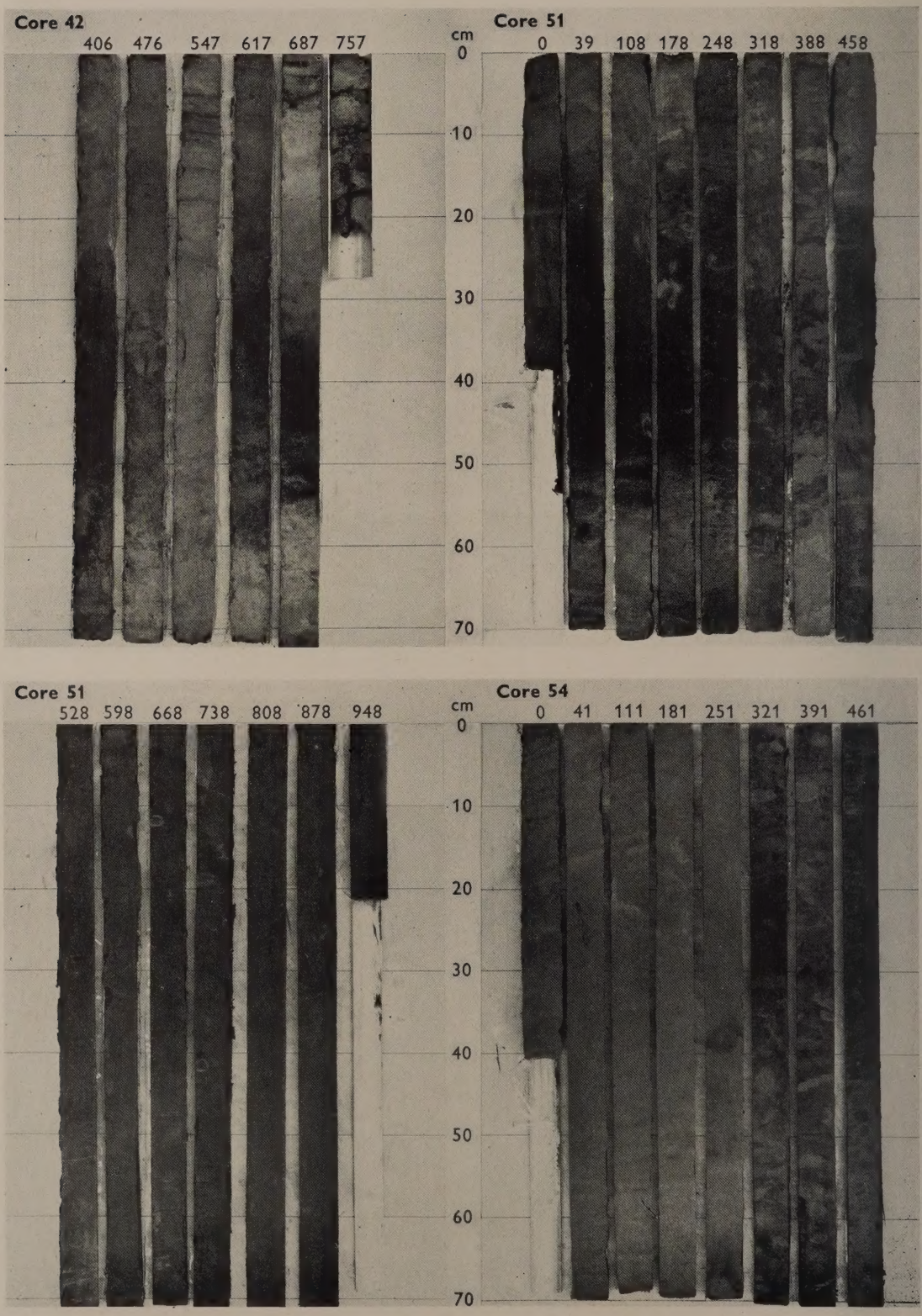
Integrity index of foraminifera expresses the ratio between entire tests and fragments, all larger than 150 μ.

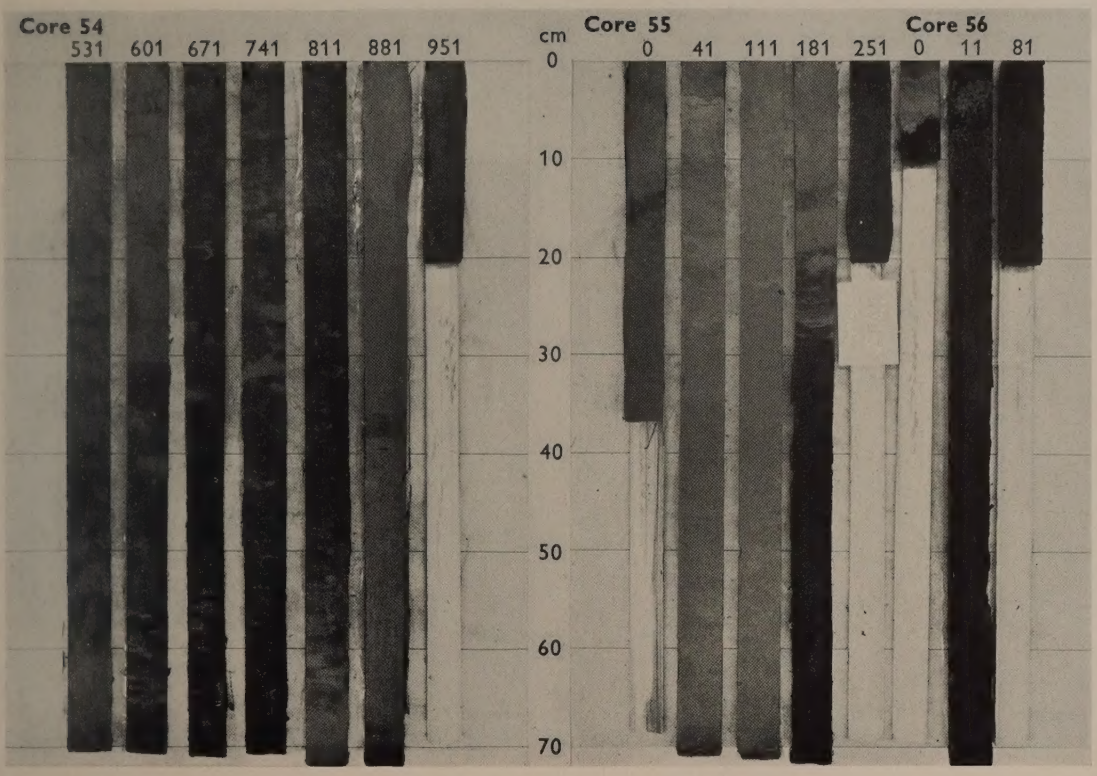
Water %, when indicated (filled circles in col. Salinity, pl. 2.42 and 2.43) has been directly determined. Scale at the bottom of the column.

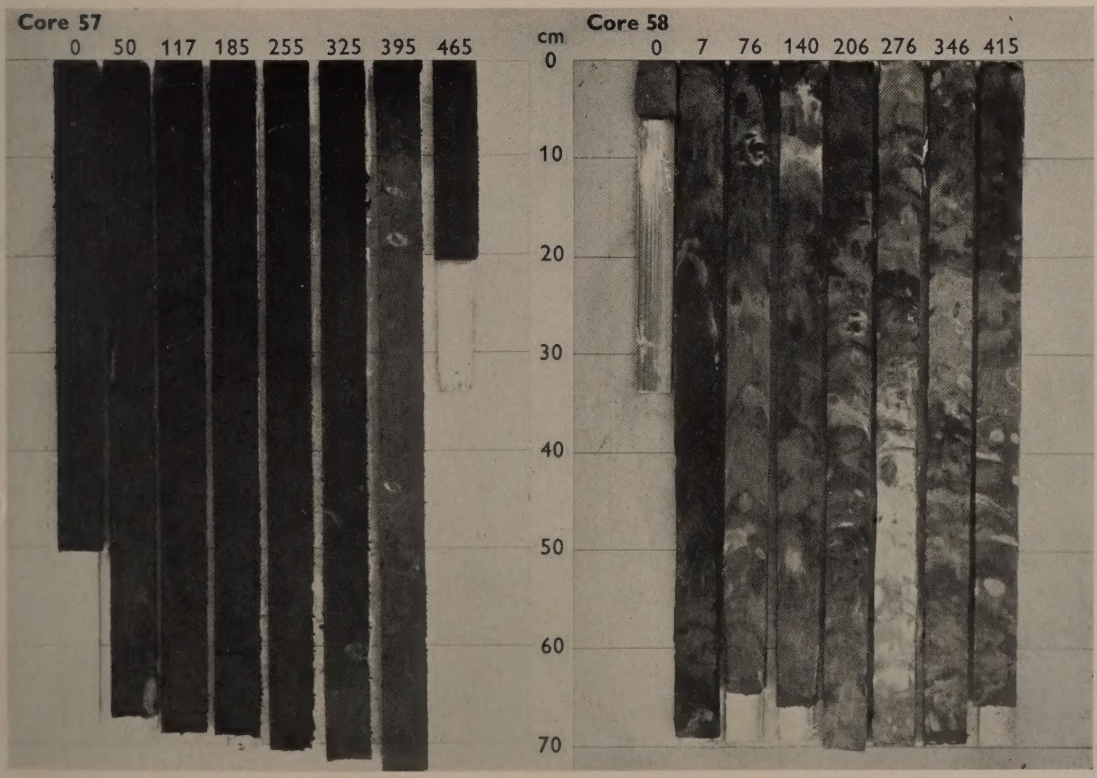
Entire foraminifera. In the pelagic clay samples foraminifera occur only sporadically, and in the diagram benthos and plankton have mostly been accounted for together.

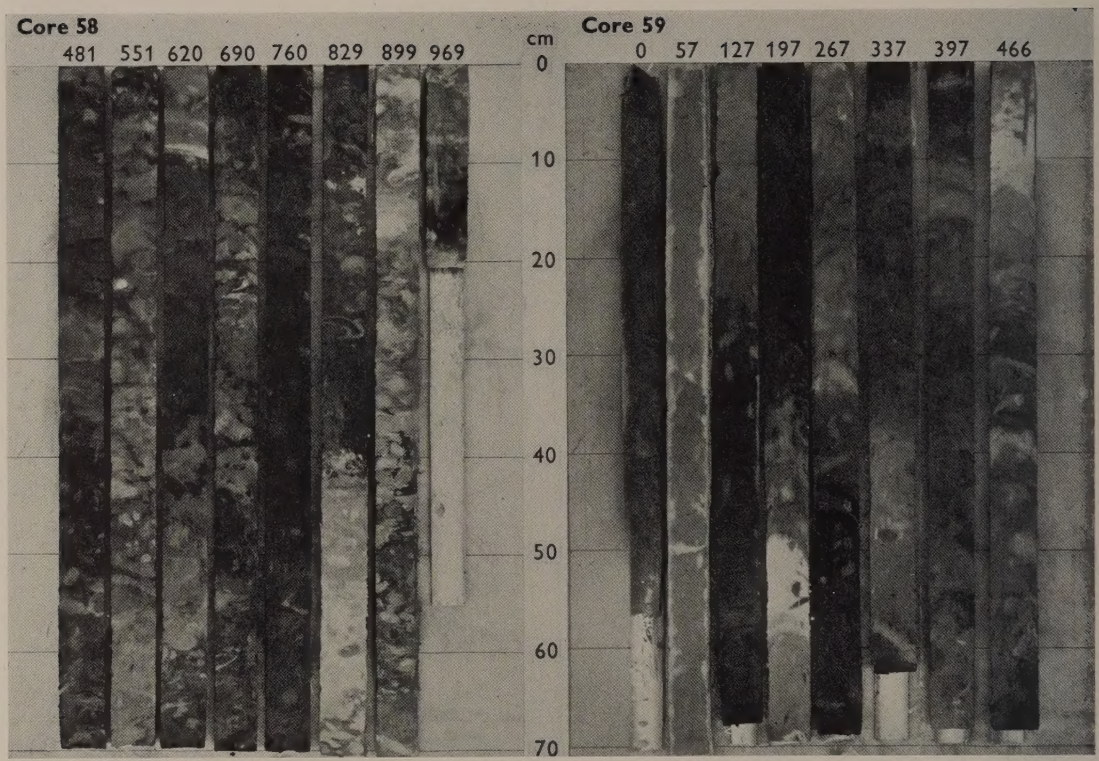

Core 38
4 55 125 195 265 335
cm
0 10 20 30 40 50 60 70
Core 39
0 35 105 175 245 315 385 455 525

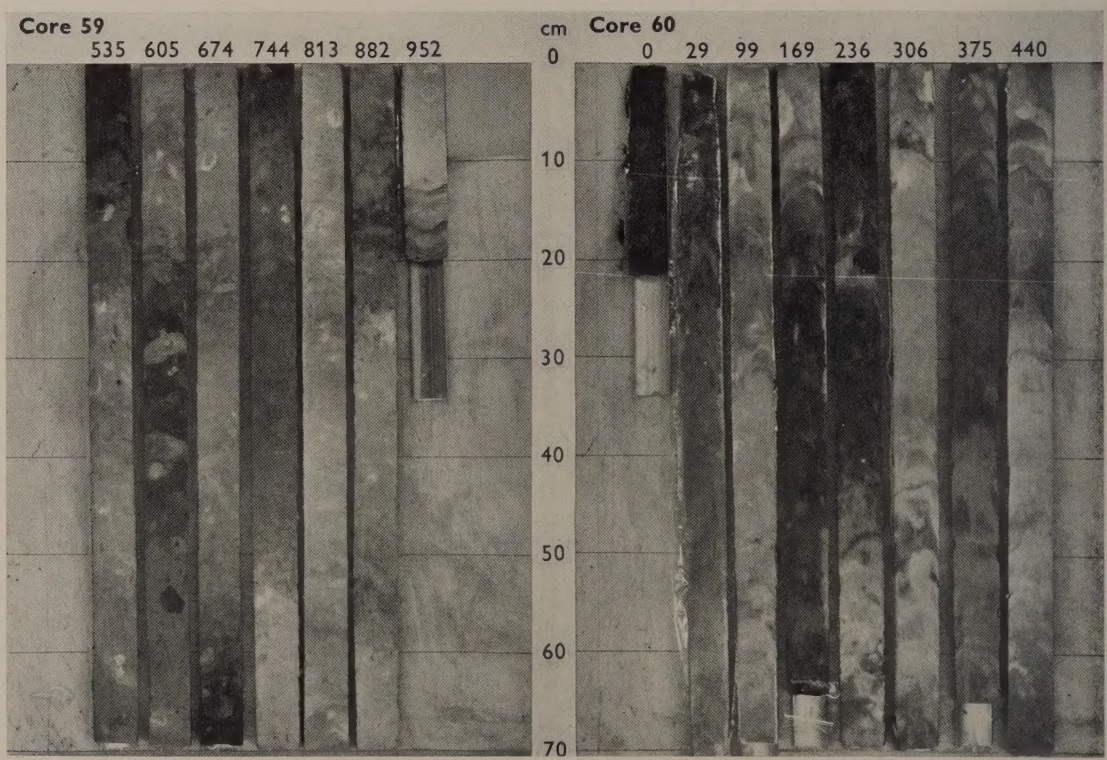

Core 41
0 22 92 144 206 270 334 402 472 542
cm
0 10 20 30 40 50 60 70
Core 42
0 58 128 197 266 336

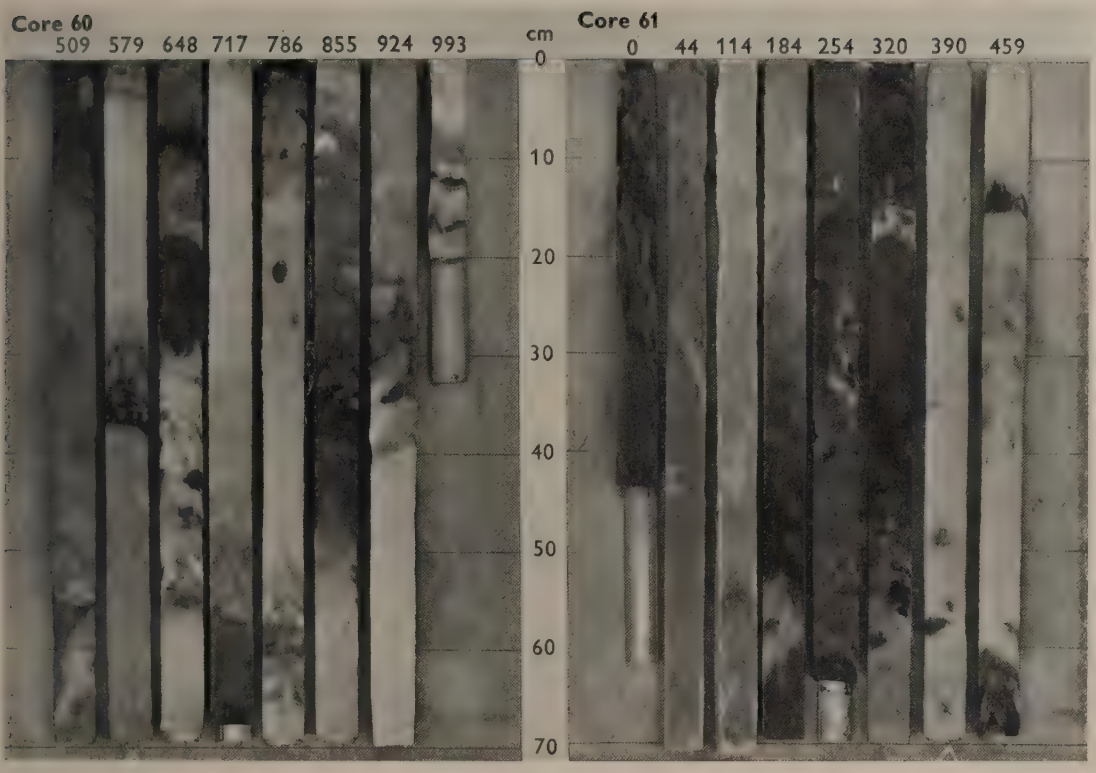

Core 42
406 476 547 617 687 757
cm
0
10
20
30
40
50
60
70
Core 51
0 39 108 178 248 318 388 458
Core 51
528 598 668 738 808 878 948
Core 54
0 41 111 181 251 321 391 461

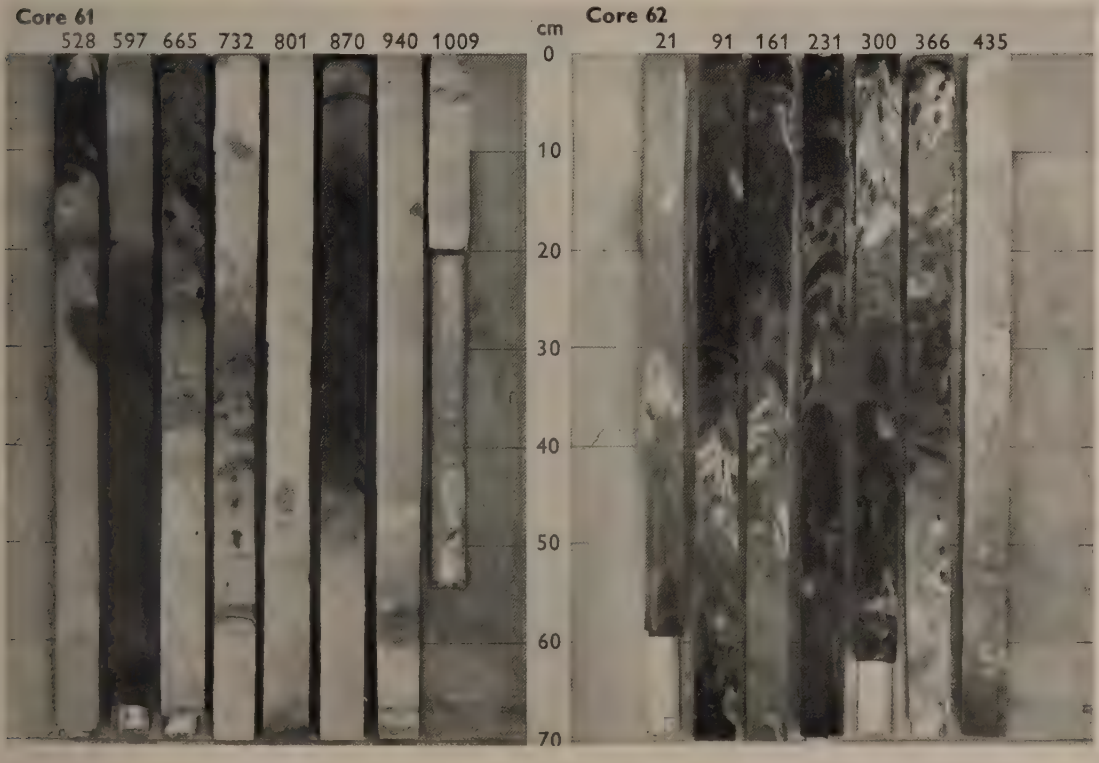

Core 54
531 601 671 741 811 881 951
cm
0
10
20
30
40
50
60
70
Core 55
0 41 111 181 251
Core 56
0 11 81

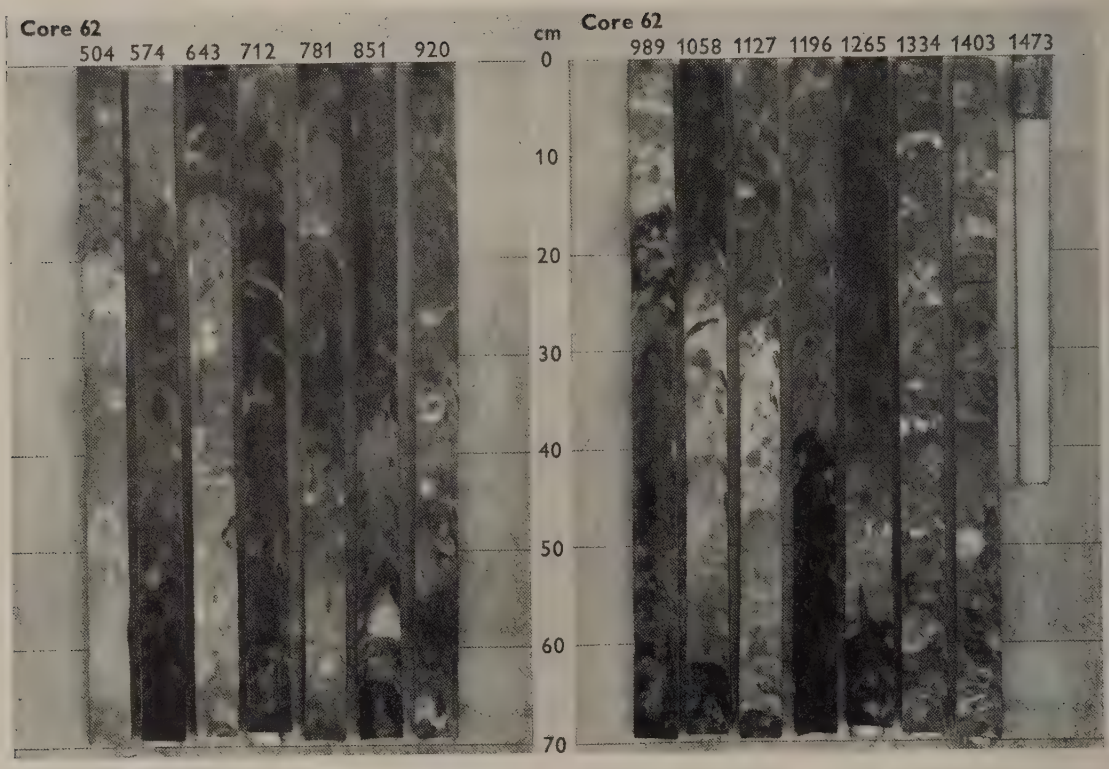

Core 57
0 50 117 185 255 325 395 465
cm
0
10
20
30
40
50
60
70
Core 58
0 7 76 140 206 276 346 415

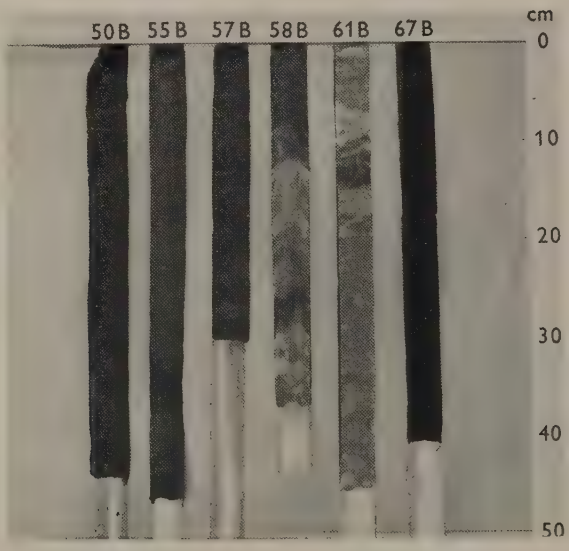

Core 58
481 551 620 690 760 829 899 969
cm
0
10
20
30
40
50
60
70
Core 59
0 57 127 197 267 337 397 466


Core 59
535 605 674 744 813 882 952
cm
0
10
20
30
40
50
60
70
Core 60
0 29 99 169 236 306 375 440


Core 60
509 579 648 717 786 855 924 993
cm
0
10
20
30
40
50
60
70
Core 61
0 44 114 184 254 320 390 459

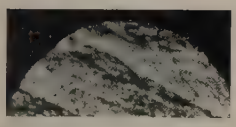

Core 61
528 597 665 732 801 870 940 1009
cm
0
10
20
30
40
50
60
70
Core 62
21 91 161 231 300 366 435


Core 62
504 574 643 712 781 851 920
cm
0
10
20
30
40
50
60
70
Core 62
989 1058 1127 1196 1265 1334 1403 1473


50B 55B 57B 58B 61B 67B
cm
0
10
20
30
40
50

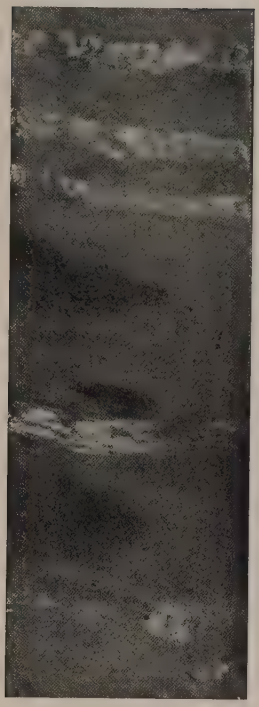
cm

Core 39 508



Core 39 506

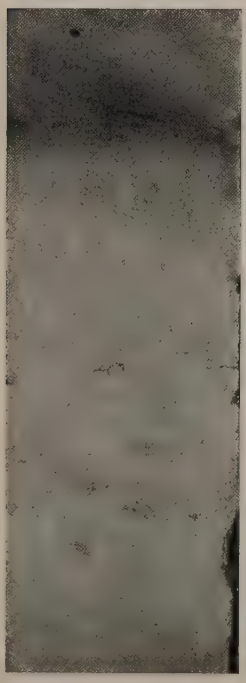
Core 40 872



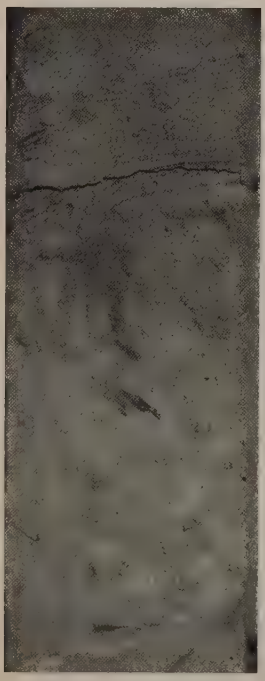
cm

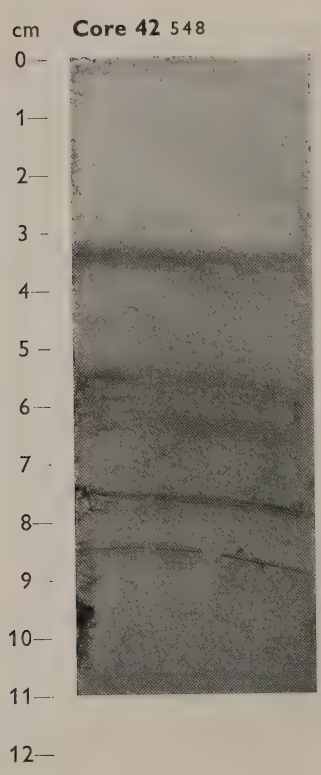
Core 41 323

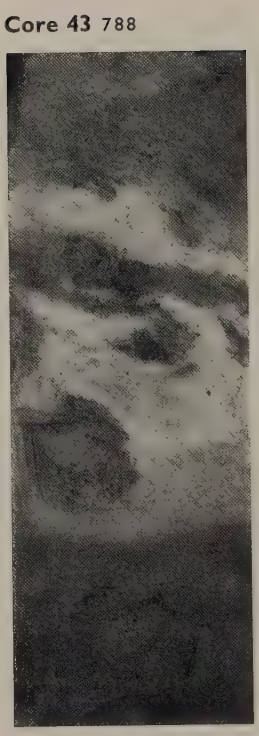
Core 41 418



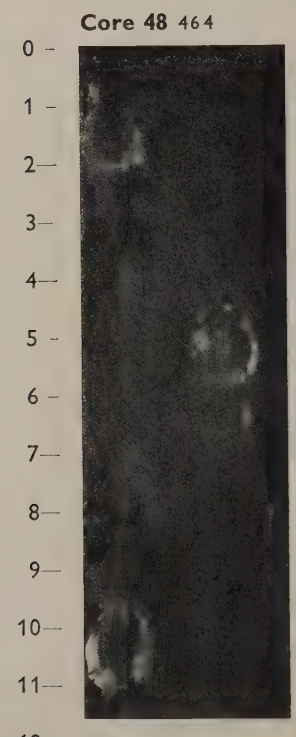
Core 41 520




cm
Core 42 548
0
1
2
3
4
5
6
7
8
9
10
11
12

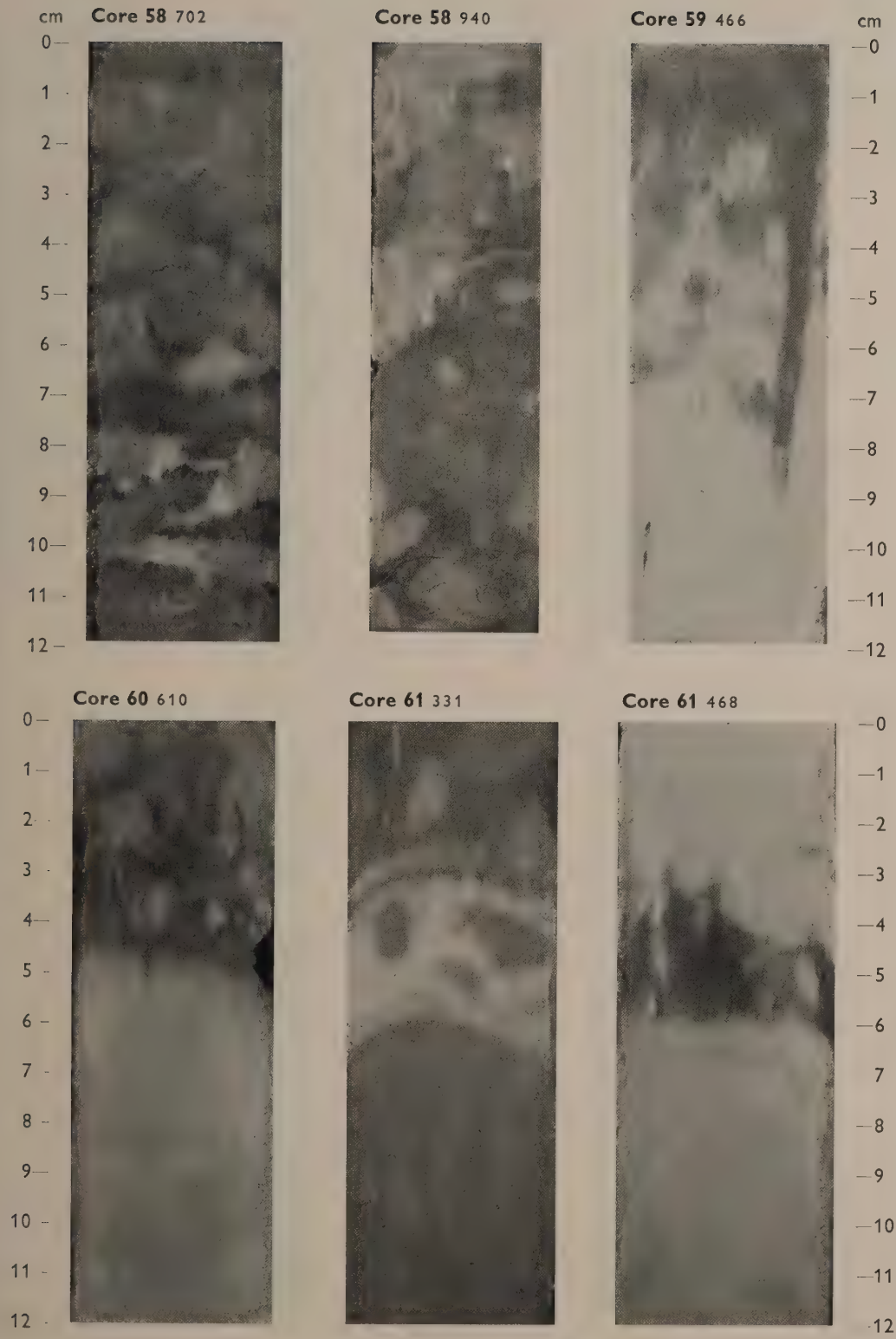

Core 43 788

Core 45 775
cm
0
1
2
3
4
5
6
7
8
9
10
11
12

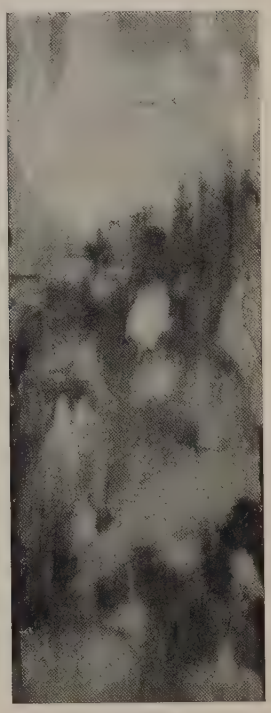

Core 48 464
0
1
2
3
4
5
6
7
8
9
10
11
12

Core 52 000

Core 56 000
0
1
2
3
4
5
6
7
8
9
10
11
12

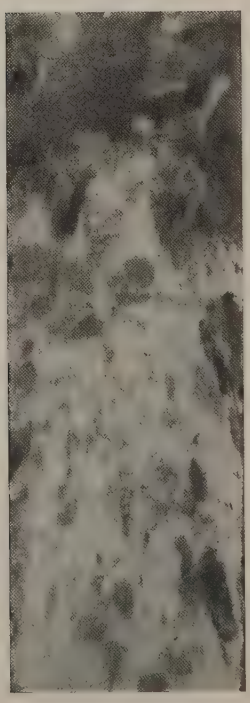

cm
Core 58 702
Core 58 940
Core 59 466
cm
0
1
2
3
4
5
6
7
8
9
10
11
12
Core 60 610
Core 61 331
Core 61 468

cm **Core 62** 1001



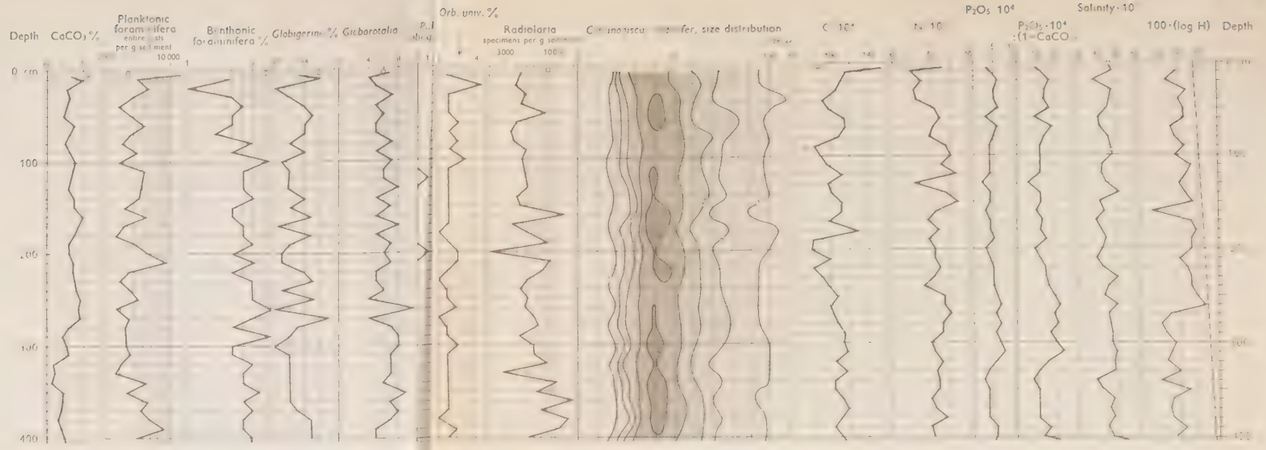
Core 62 1078 cm

Core 62 1150

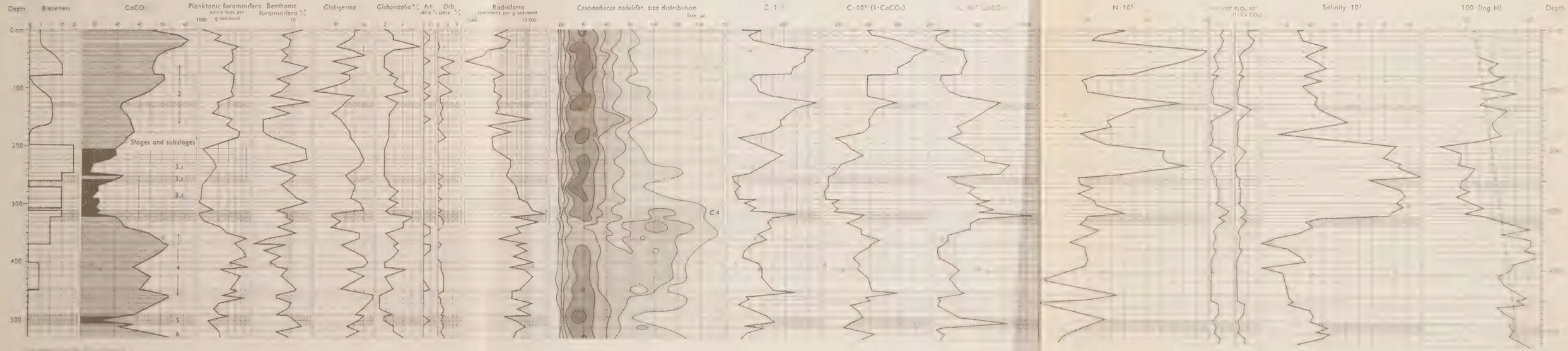


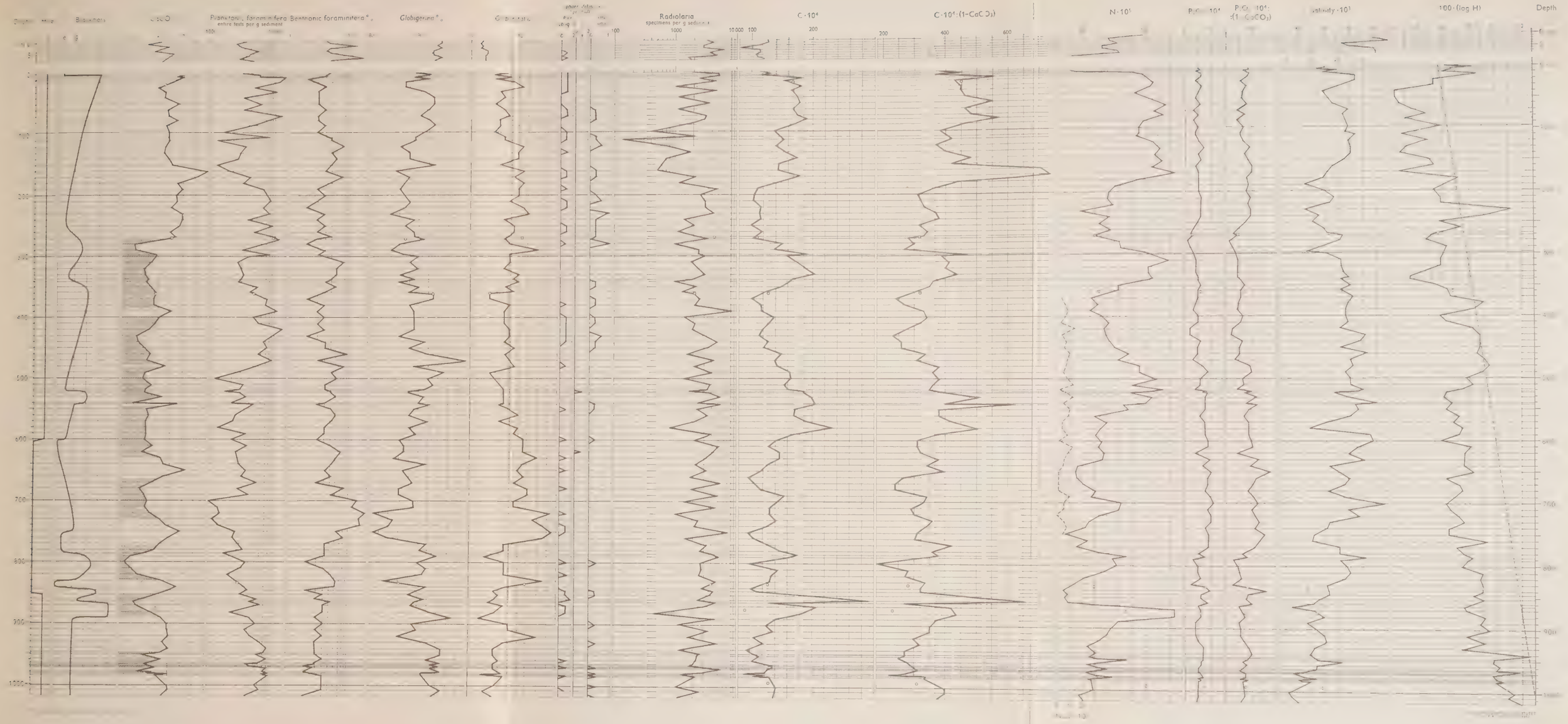
Core 62 1430

PL. 2.38

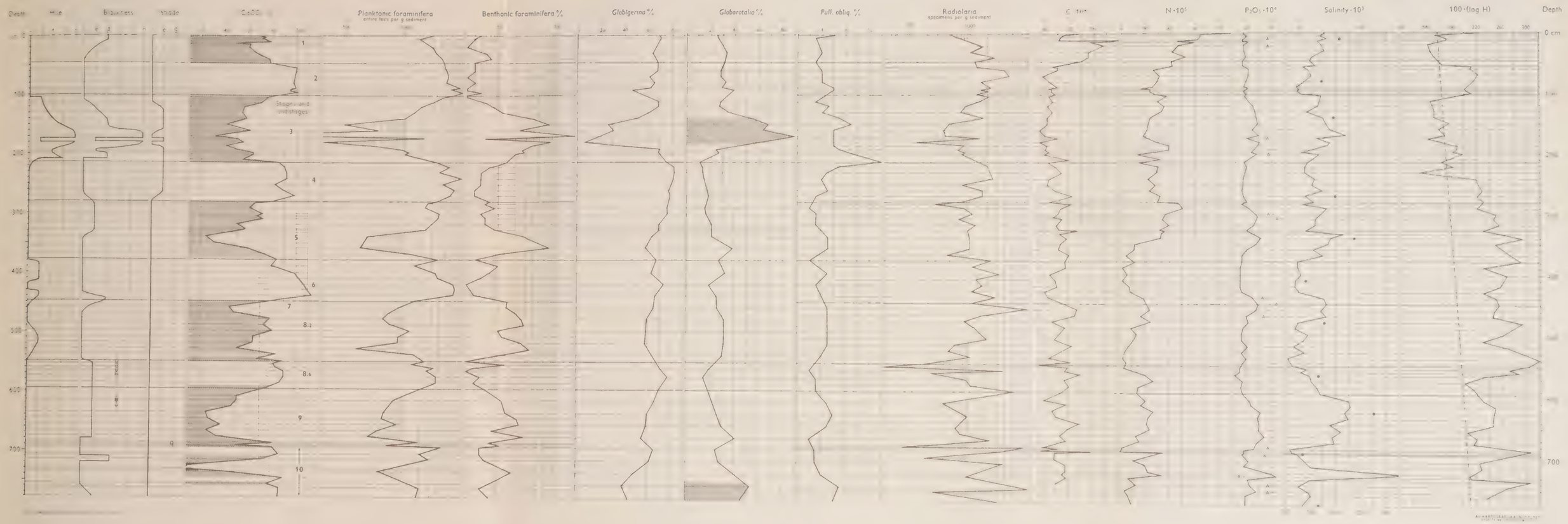

Depth
CaCO3 %
Planktonic foraminifera
Benthonic foraminifera %
Globigerina %
Globorotalia
Orb. univ. %
Radiolaria
P2O5 10⁴
Salinity · 10
100 · (log H)
Depth

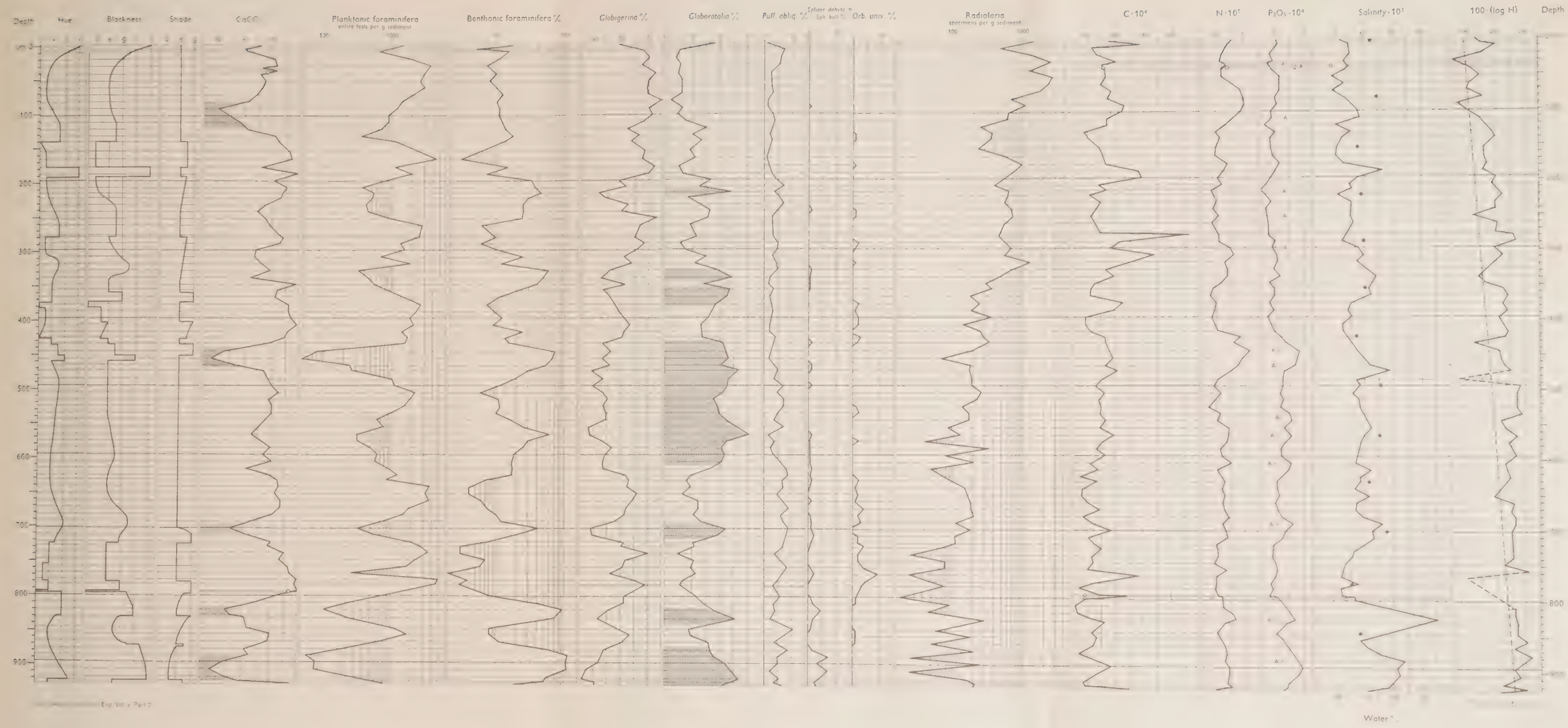
PL. 2.39

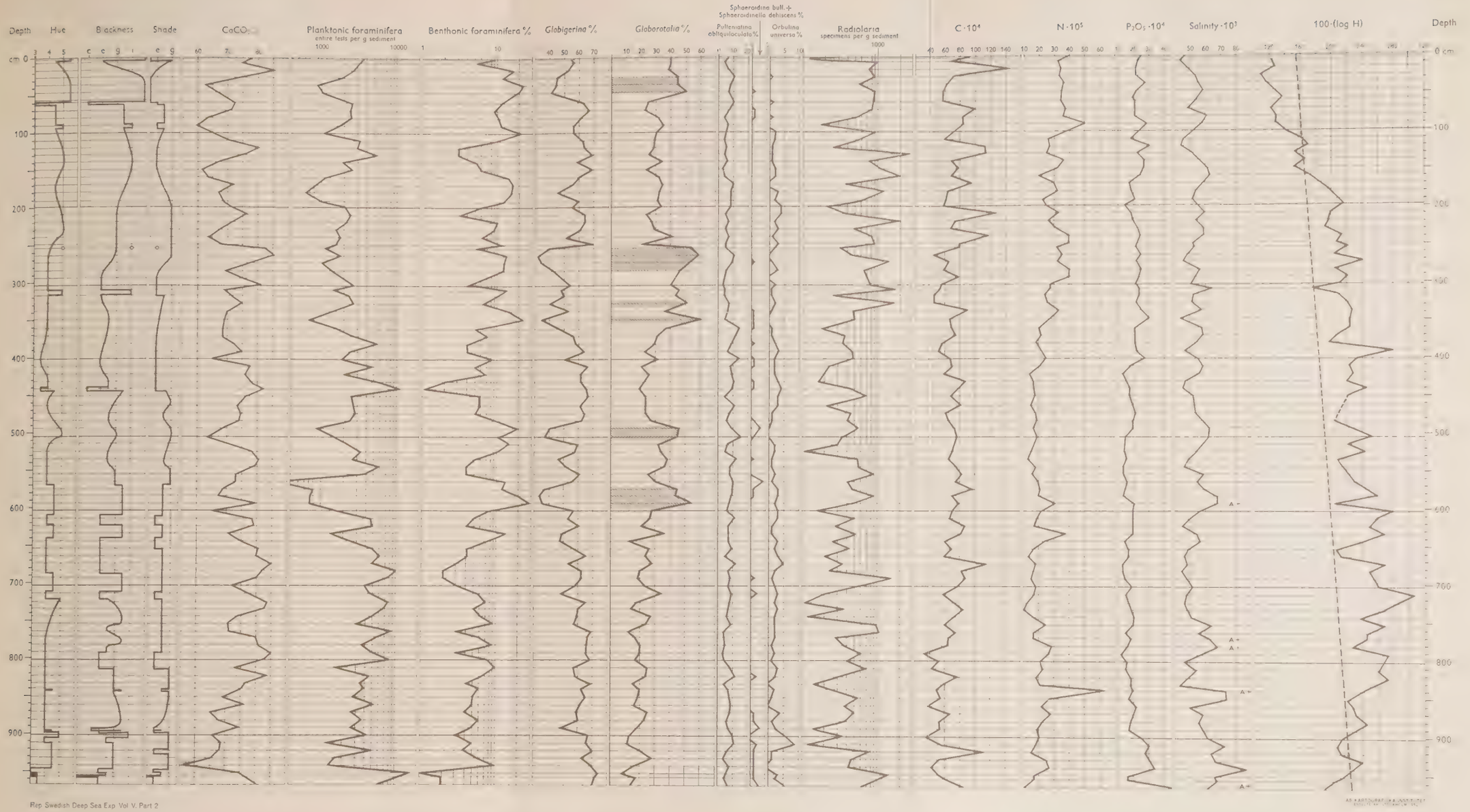

Depth
Blackness
CaCO3
Stages and substages
Planktonic foraminifera
Benthonic foraminifera %
Globigerina
Globorotalia %
Orb. univ. %
Radiolaria
Coscinodiscus nodulifer, size distribution
C4
C · 10⁴ · (1 - CaCO3)
N · 10⁵
Salinity · 10³
100 · (log H)
Depth

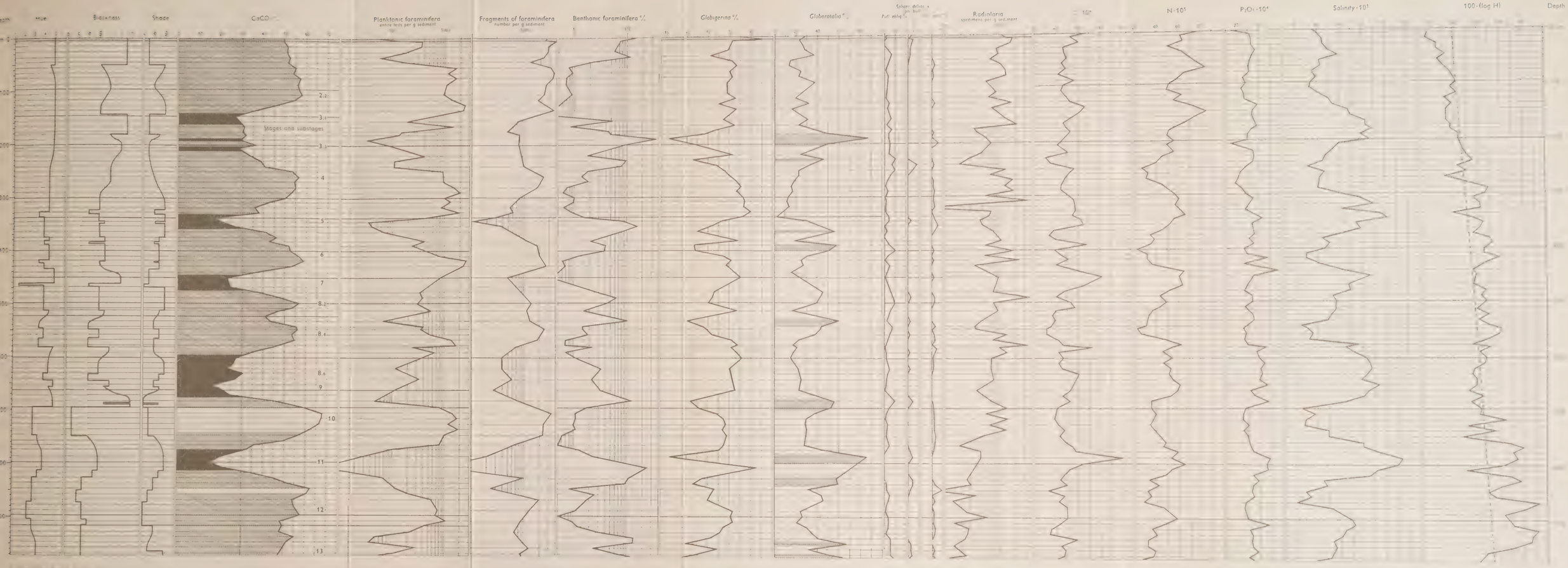

Radiolaria
specimens per g sediment
1000
10.000 100
C·10⁴
200
200
C·10⁴:(1-CaCO₃)
400
600
N·10⁵
100·(log H)
Depth
100
200
300
400
500
600
700
800
900
1000

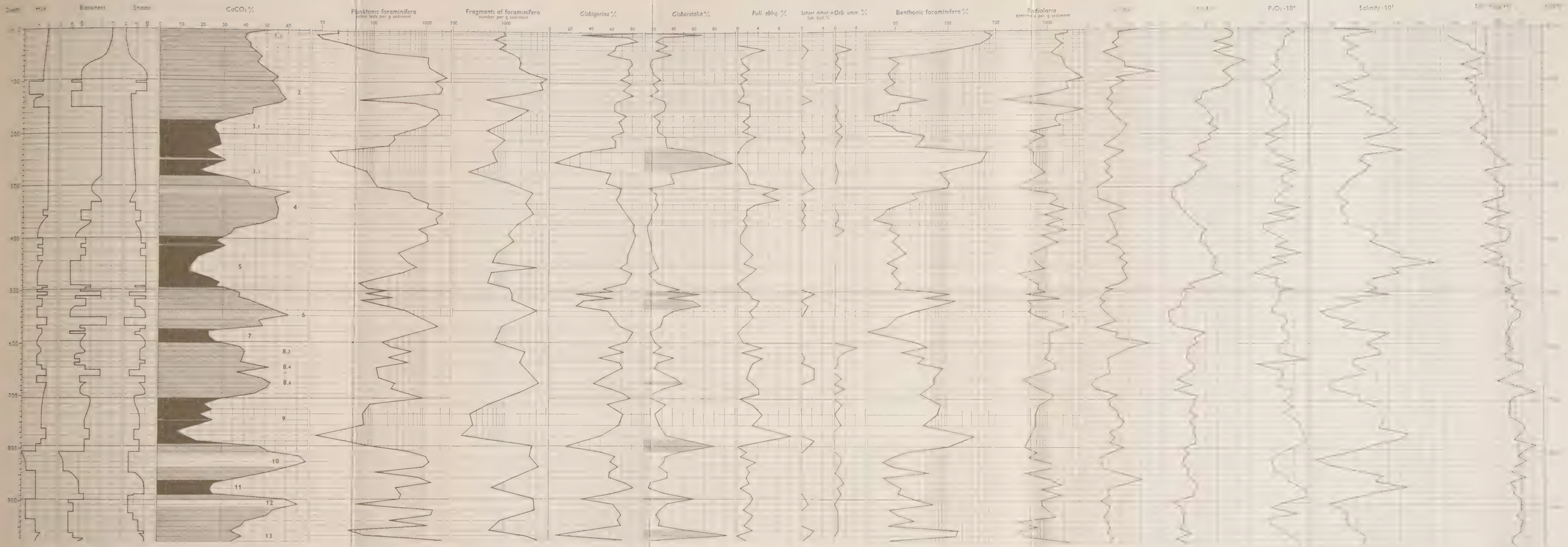
Depth
mud
Biogenous
Shale
CaCO
Planktonic foraminifera
tire tests g sediment
10 000
Benthonic foraminifera %
Globigerina °₀
Radiolaria
specimens per g sediment
Salinity · 10³
100 · (log H)
Depth
100
200
300
400
500

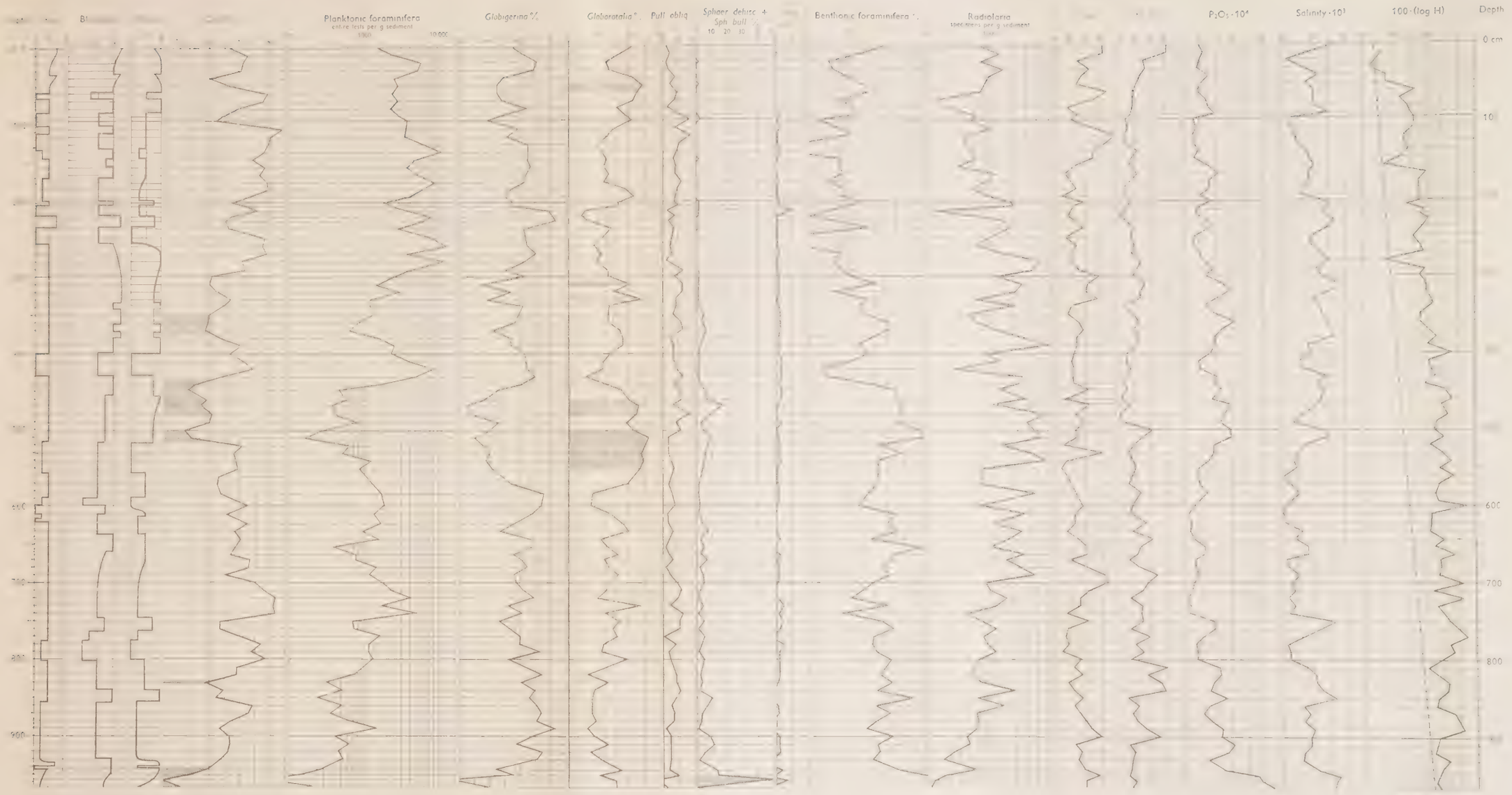

Depth
Silt
Brownness
Shade
CaCO3
Planktonic foraminifera
entire tests per g sediment
Benthonic foraminifera %
Globigerina %
Globorotalia %
Pull. obliq. %
Radiolaria
specimens per g sediment
C
N·10⁵
P2O5·10⁴
Salinity·10³
100·(log H)
Depth
0 cm
700
Stage
Substages
1
2
3
4
5
6
7
8.2
8.6
9
10
Water %


Depth
Hue
Blackness
Shade
CaCO
Planktonic foraminifera
entire tests per g sediment
Benthonic foraminifera %
Globigerina %
Globorotalia %
Pull. obliq. %
Sphaer. debris %
Sph. bull. %
Orb. univ. %
Radiolaria
specimens per g sediment
C·10⁴
N·10⁵
P₂O₅·10⁴
Salinity·10³
100·(log H)
Depth
cm
Exp. Vol. v. Part 2
Water "

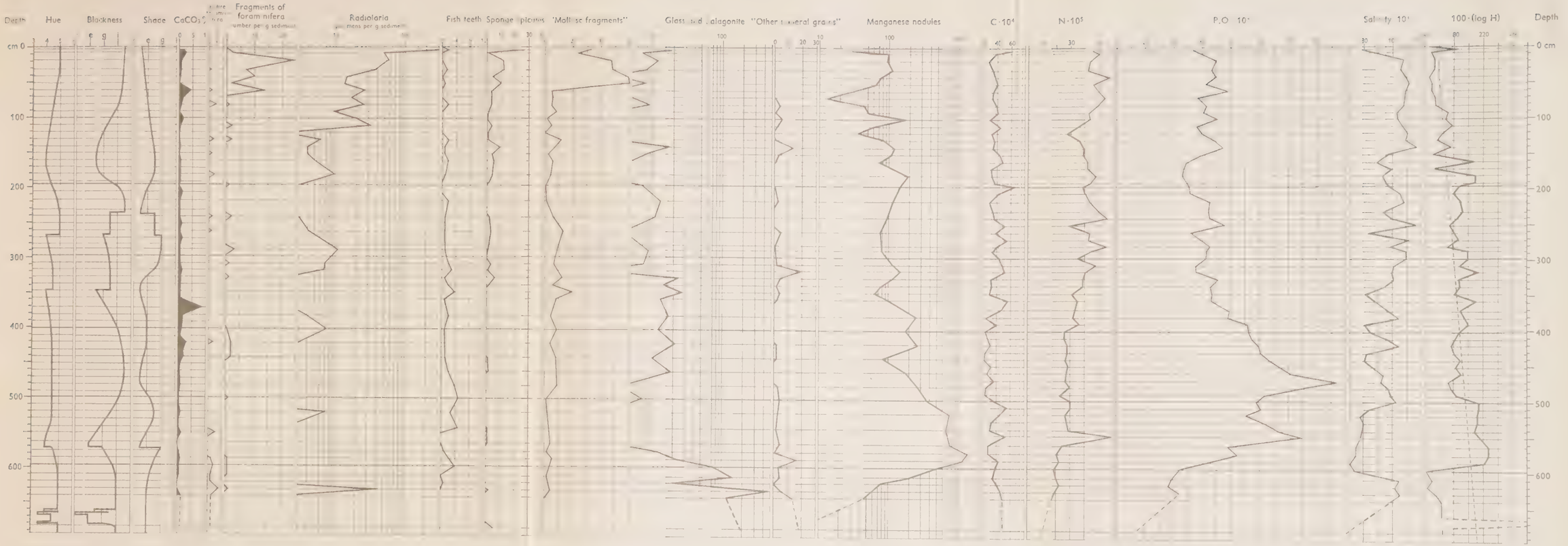

Depth
Hue
Blackness
Shade
CaCO3
Planktonic foraminifera
entire tests per g sediment
Benthonic foraminifera %
Globigerina %
Globorotalia %
Sphaeroidina bull. +
Sphaeroidinella dehiscens %
Pullenia tina obliquiloculata %
Orbulina universa %
Radiolaria
specimens per g sediment
C ·10⁴
N ·10⁵
P2O5 ·10⁴
Salinity ·10³
100·(log H)
Depth
cm 0
100
200
300
400
500
600
700
800
900


Depth
Hue
Blackness
Shade
CaCO3
Planktonic foraminifera
entire tests per g sediment
Fragments of foraminifera
number per g sediment
Benthonic foraminifera %
Globigerina %
Globorotalia %
Radiolaria
specimens per g sediment
N·10³
P2O5·10⁴
Salinity·10¹
100·(log H)
Depth
Stages and substages
2.2
3.1
3.3
4
5
6
7
8.2
8.4
8.6
9
10
11
12
13


Depth
Hue
Blackness
Shade
$CaCO_3$ %
Planktonic foraminifera
entire tests per g sediment
Fragments of foraminifera
number per g sediment
Globigerina %
Globorotalia %
Pull. obliq. %
Subsp. debar. + Orb. univ. %
Sph. bull. %
Benthonic foraminifera %
Radiolaria
specimens per g sediment
$P_2O_5 \cdot 10^4$
Salinity $\cdot 10^1$
1.0
2
3.1
3.3
4
5
6
7
8.2
8.4
8.6
9
10
11
12
13

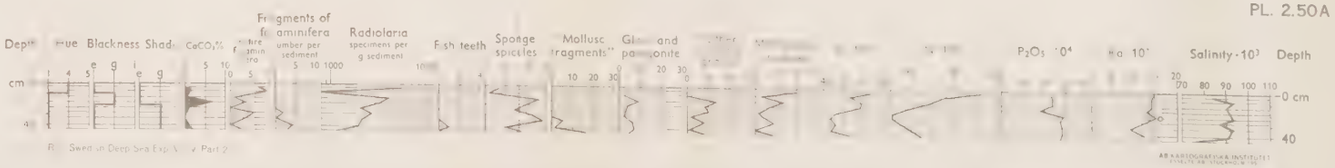

Planktonic foraminifera
entire tests per g sediment
1.000
10.000
Globigerina %
Globoratalia %
Pull. obliq
Sphaer. debisc. +
Sph. bull. %
10 20 30
Benthonic foraminifera %
Radiolaria
specimens per g sediment
$P_2O_5 \cdot 10^4$
Salinity $\cdot 10^1$
100 - (log H)
Depth
0 cm
100
600
700
800
900

PL. 2.48

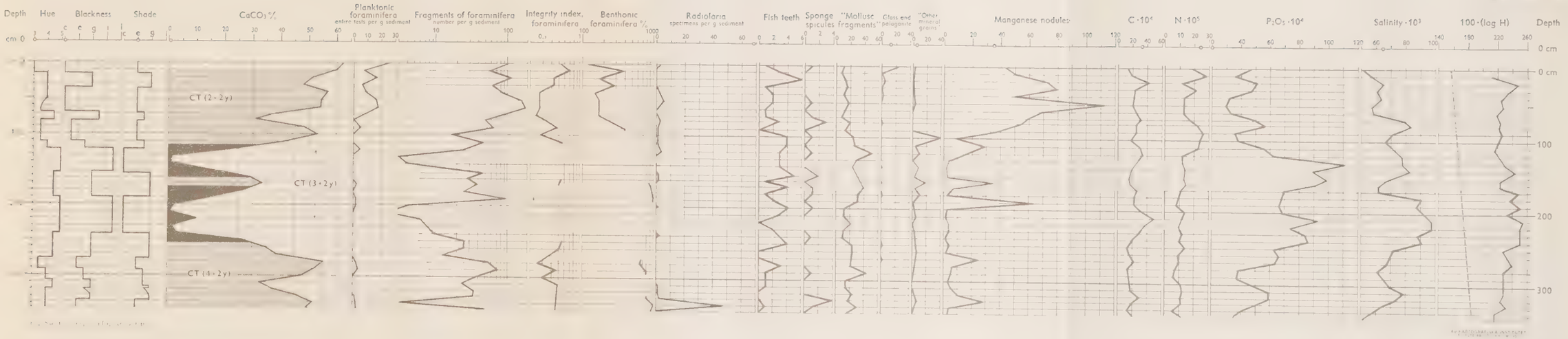


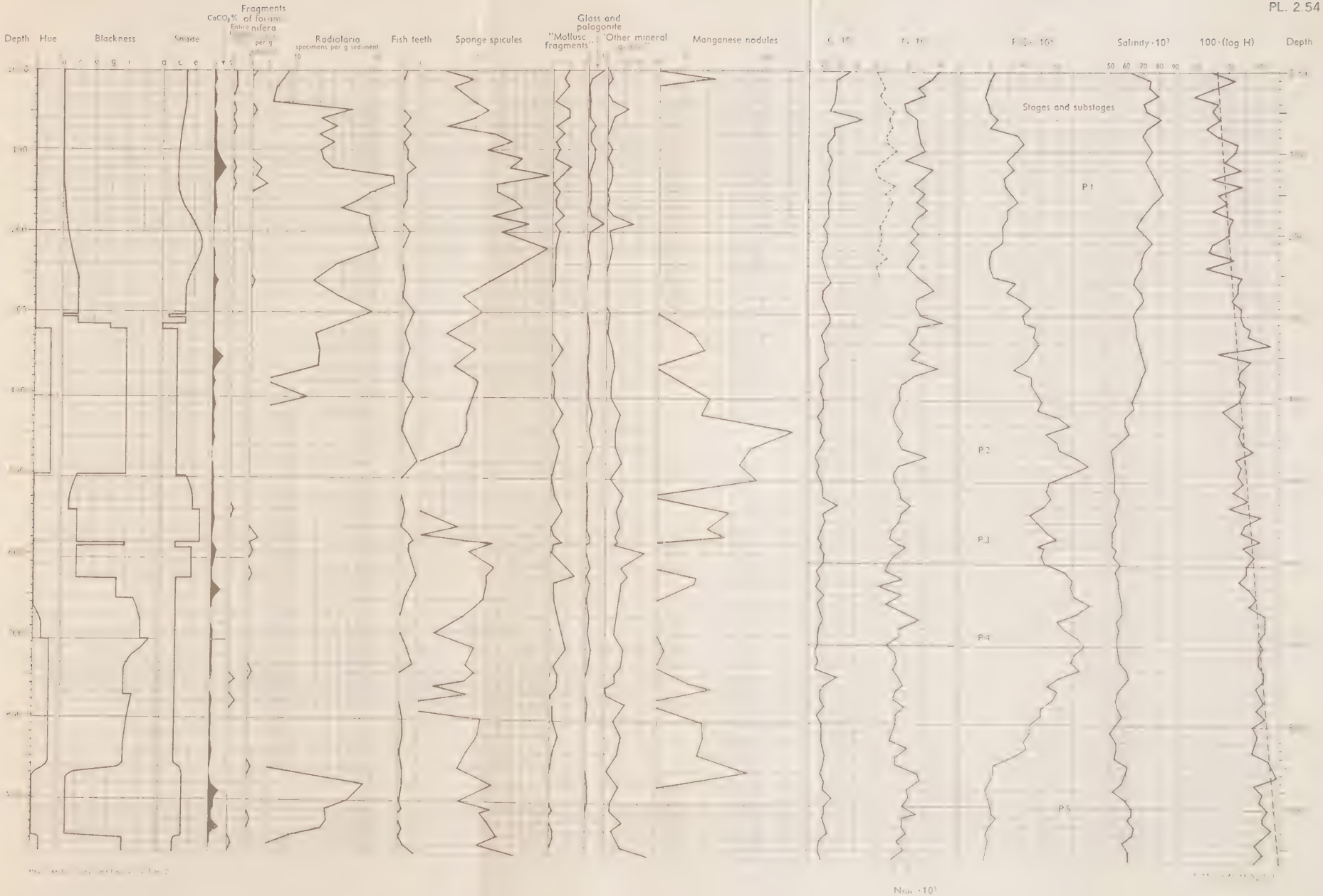
Rep Swedish Deep Sea Exp Vol V Part

PL. 2.50A

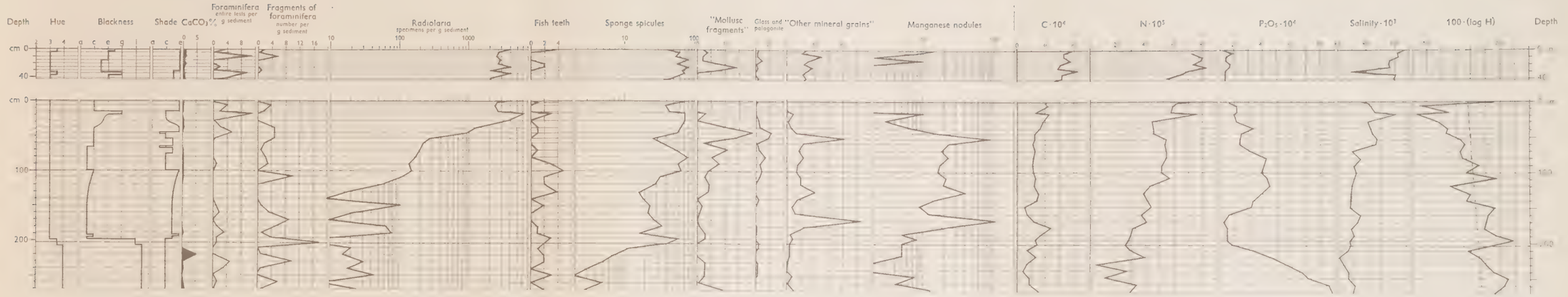


Rep Swedish Deep Sea Exp Vol V Part 2

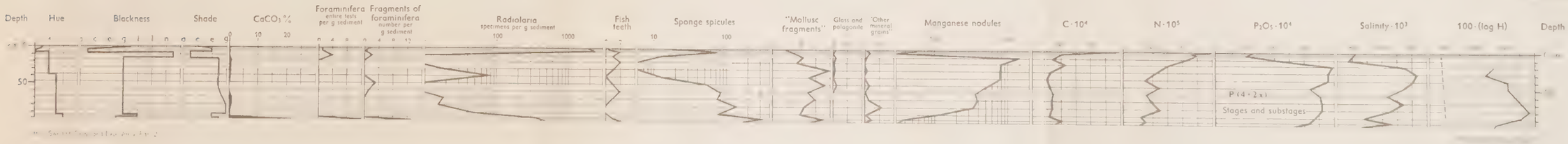

Depth
Hue
Blackness
Shade
CaCO3 %
Planktonic foraminifera
entire tests per g sediment
Fragments of foraminifera
number per g sediment
Integrity index, foraminifera
Benthonic foraminifera %
Radiolaria
specimens per g sediment
Fish teeth
Sponge spicules
"Mollusc fragments"
Glass and pelagonite
"Other mineral grains"
Manganese nodules
C·10⁴
N·10⁵
P2O5·10⁴
Salinity·10³
100·(log H)
Depth
cm 0
CT (2·2y)
CT (3·2y)
CT (4·2y)
0 cm
100
200
300

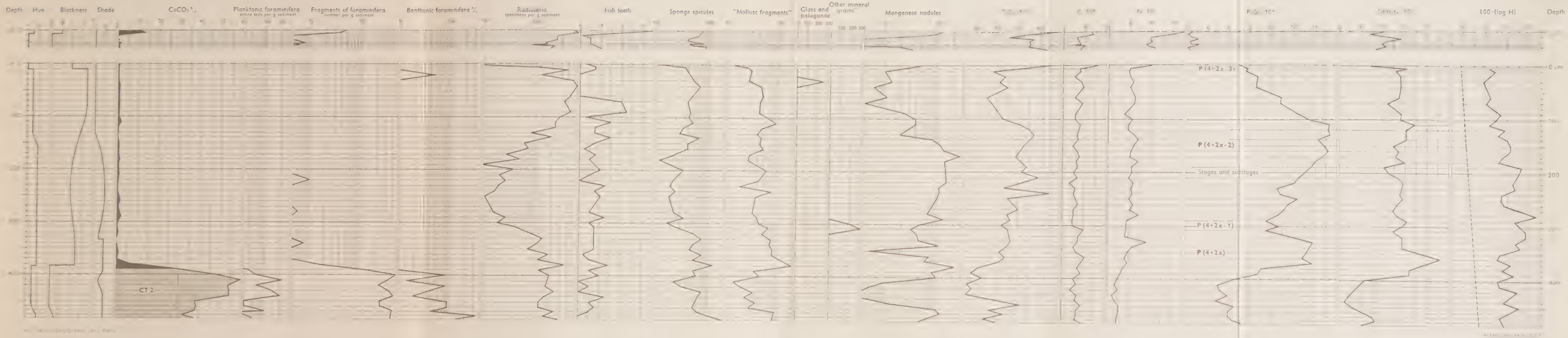

Depth
Hue
Blackness
Shade
Fragments of foraminifera
Radiolaria
specimens per g sediment
Fish teeth
Sponge spicules
Glass and palagonite
"Mollusc fragments"
"Other mineral
Manganese nodules
Salinity ·10³
100 ·(log H)
Depth
Stages and substages
P1
P2
P3
P4
P5

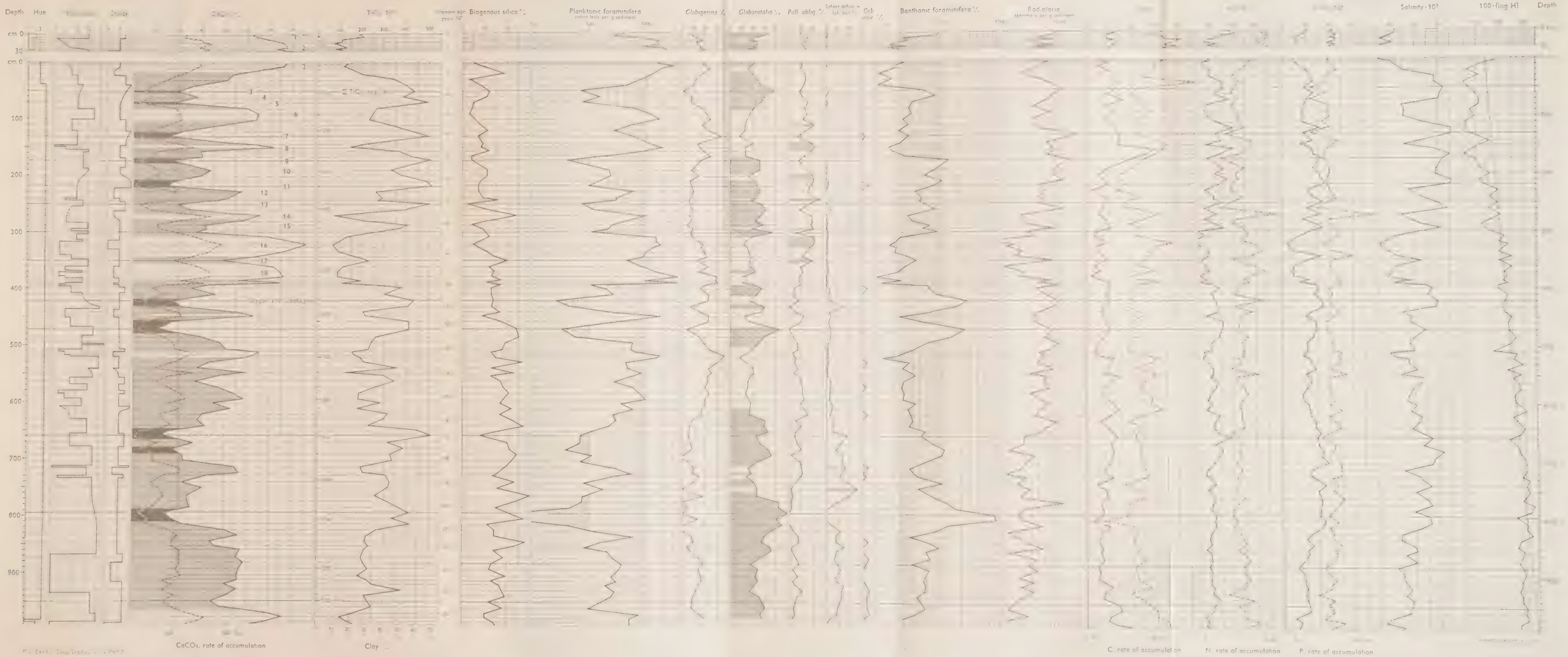
PL. 2.55B-2.55

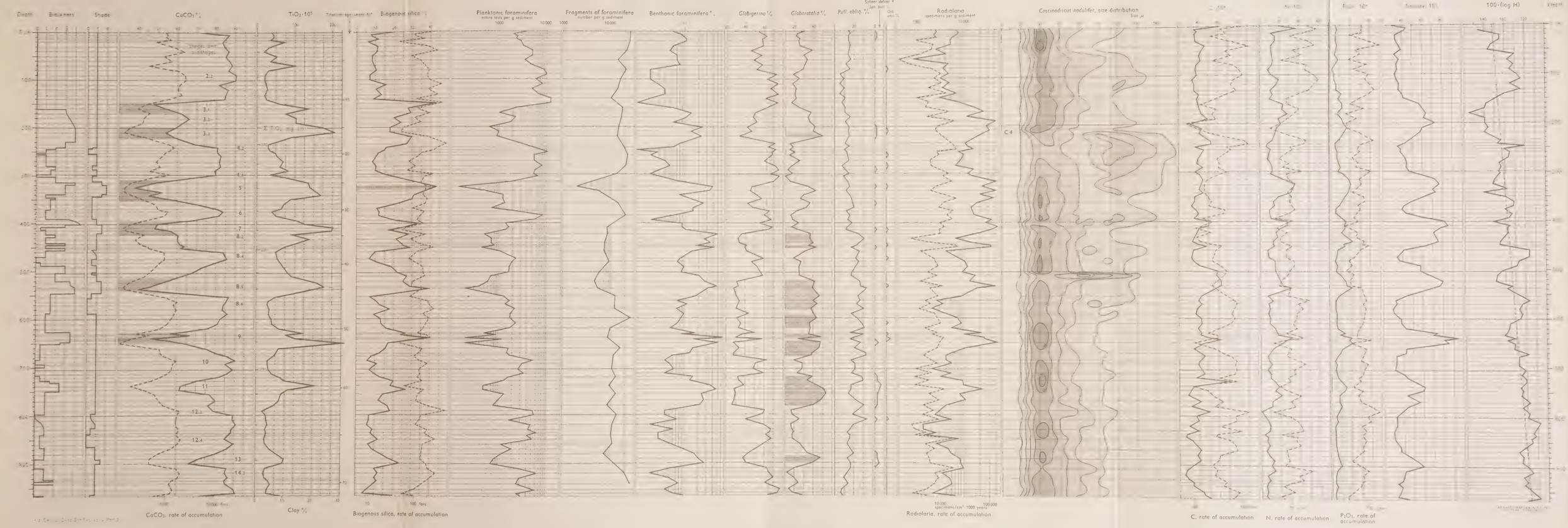


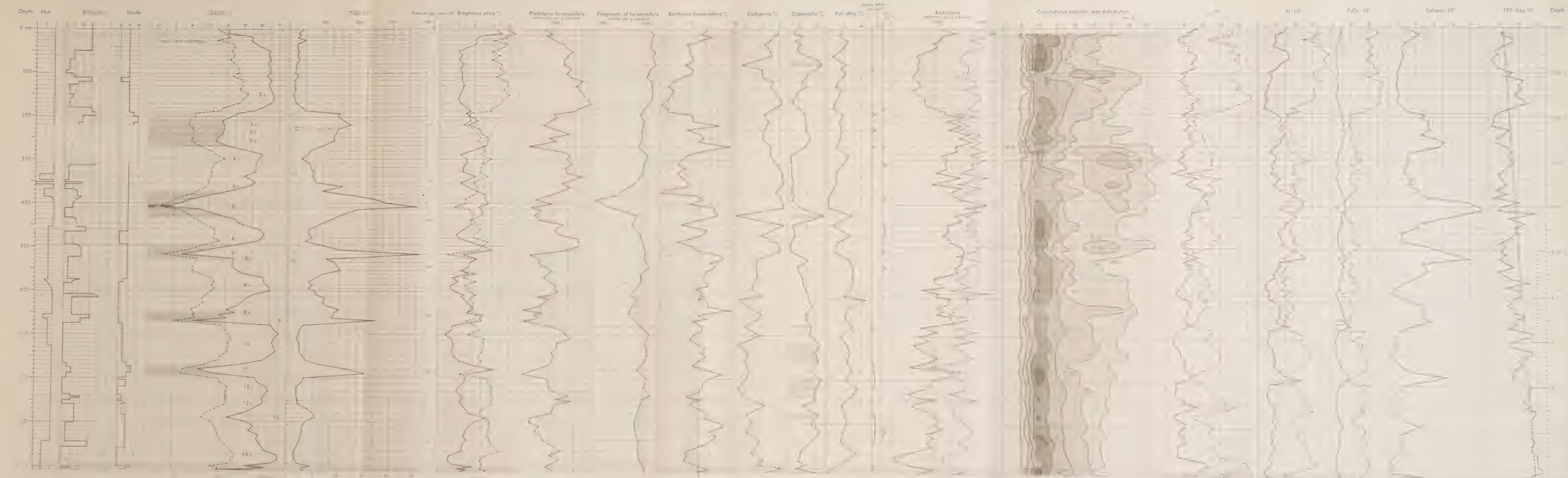
PL. 2.56

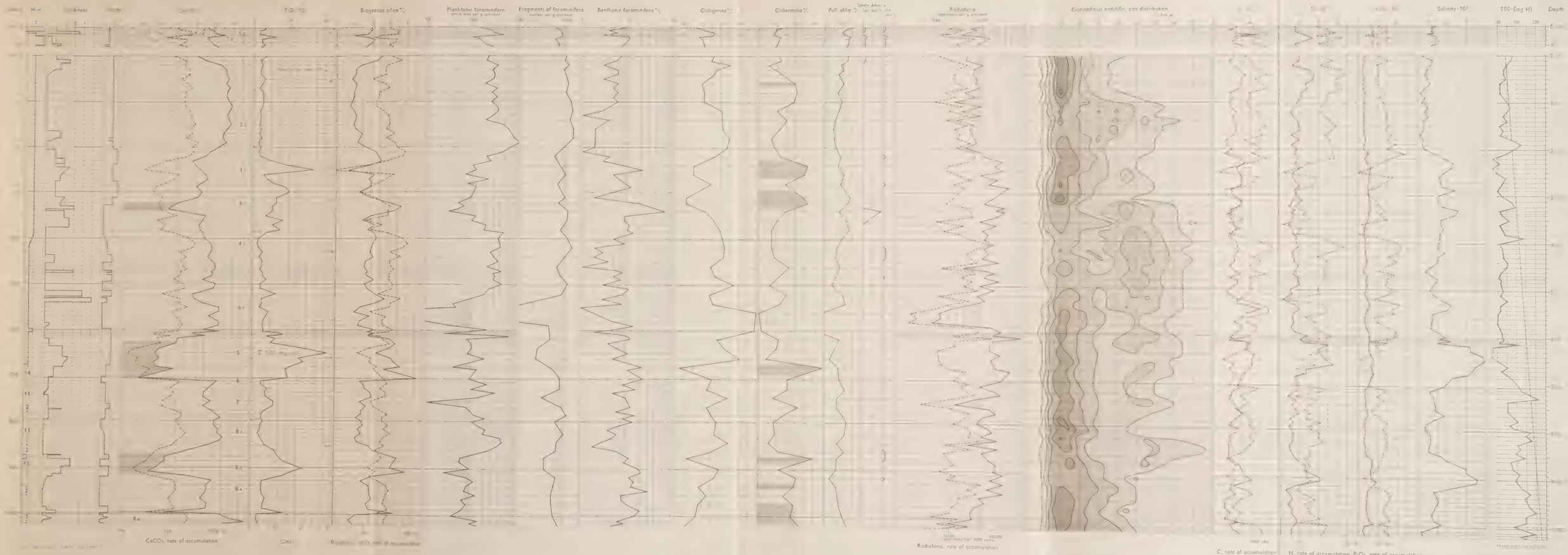


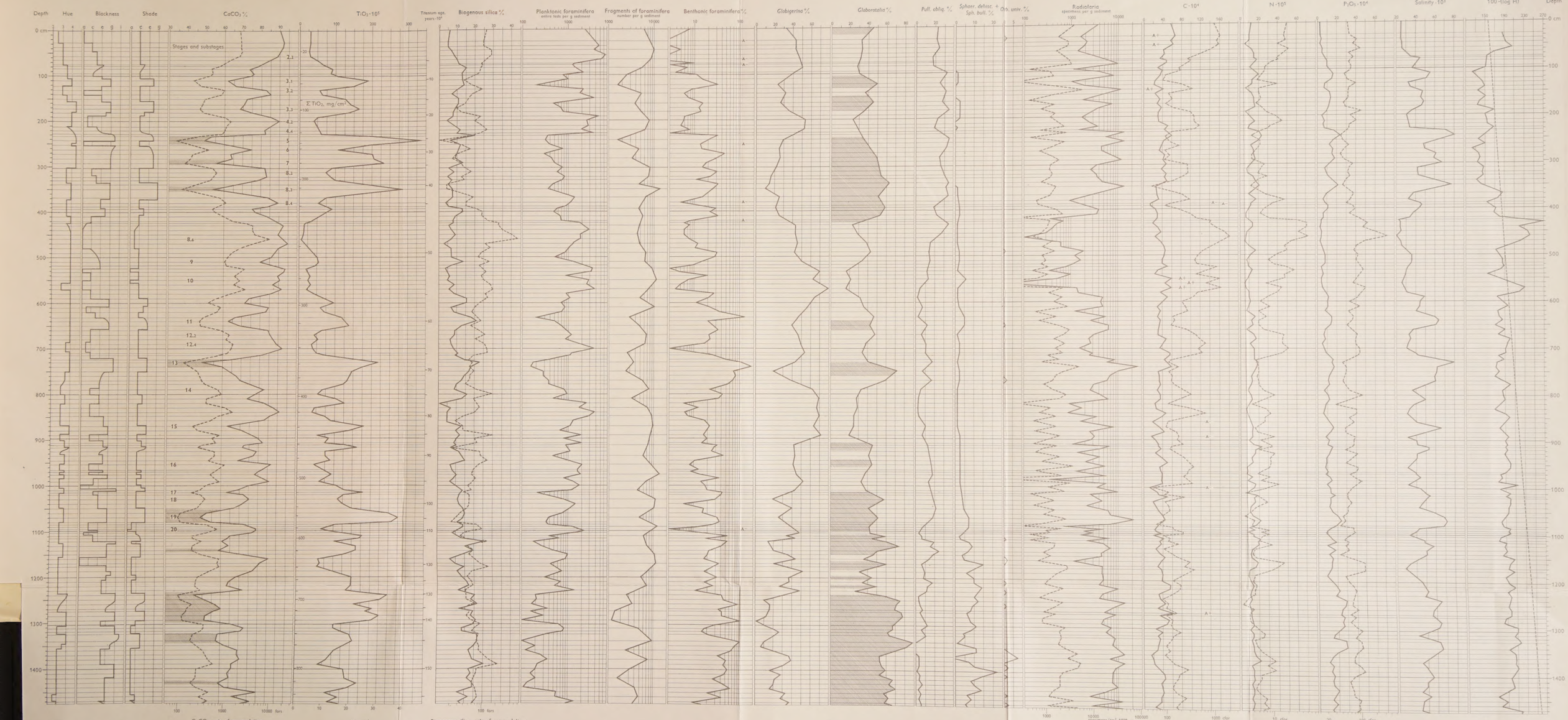

Depth
Hue
Blackness
Shade
CaCO3 %
Planktonic foraminifera
entire tests per g sediment
Fragments of foraminifera
number per g sediment
Benthonic foraminifera %
Radiolaria
specimens per g sediment
Fish teeth
Sponge spicules
"Mollusc fragments"
Glass and palagonite
Other mineral grains
Manganese nodules
100 · (log H)
Depth
CT 2
P (4+2x-3)
P (4+2x-2)
Stages and substages
P (4+2x-1)
P (4+2x)
0 cm
100
200
400


Depth
Hue
Biogenous silica %
Planktonic foraminifera
Globigerina %
Globoratalia %
Benthonic foraminifera %
Rad.olaria
Salinity - 10³
100 - (log H)
Depth
cm 0
30
cm 0
100
200
300
400
500
600
700
800
900
CaCO₃, rate of accumulation
Clay
C, rate of accumulation
N, rate of accumulation
P, rate of accumulation


Diatoms
Bituminous
Shade
CaCO3 %
TiO2·10³
Titanium spp. counts 10³
Biogenous silica %
Planktonic foraminifera
entire tests per g sediment
1000
10.000
Fragments of foraminifera
number per g sediment
1000
10.000
Benthonic foraminifera %
Globigerina %
Globorotalia %
Sphaer. dehiscr. %
Sph. bull. %
Orb. univ. %
Pull. obliq. %
Radiolaria
specimens per g sediment
1.000
Coscinodiscus nodulifer, size distribution
Size µ
Kappa, 10⁻³
Susceptibility, 10⁻⁶
100·(log H)
Lithology
Shrinkage and cracking
2.2
3.1
3.2
3.3
4.2
4.3
5
6
7
8.2
8.4
8.5
8.6
9
10
11
12.2
12.4
13
14.2
C 4
Σ TiO2 mg/cm²
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
170
180
190
200
210
220
230
240
250
260
270
280
290
300
310
320
330
340
350
360
370
380
390


Depth
Hue
Value
Chroma
CaCO3
Totemun age years·10³
Biogenous silica %
Planktonic foraminifera
entire tests per g sediment
1000
Fragments of foraminifera
number per g sediment
1000
Benthonic foraminifera %
Globigerina %
Globorotalia %
Pull obliq %
Radiolaria
specimens per g sediment
Coccinodiscus radiofer. size distribution
N·10³
P2O5·10³
Salinity·10³
100-(log H)
Depth
0 cm
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
2100
2200
2300
2400
2500
2600
2700
2800
2900
3000
3100
3200
3300
3400
3500
3600
3700
3800
3900
4000


Thickness
Biogenous silica %
Planktonic foraminifera
entire tests per g sediment
1000
Fragments of foraminifera
number per g sediment
10000
1
Benthonic foraminifera %
Globigerina %
Globoratalia %
Pull oblig %
Radiolaria
specimens per g sediment
Coscinodiscus nodulifer, size distribution
Salinity - 10³
100-(lag H)
Depth
CaCO₃ rate of accumulation
Radiolaria, rate of accumulation
C, rate of accumulation
N, rate of accumulation P₂O₅, rate of accumulation


Depth
Hue
Blackness
Shade
CaCO3 %
Stages and substages
TiO2·10⁵
Titanium age, years·10⁶
Biogenous silica %
Planktonic foraminifera
entire tests per g sediment
Fragments of foraminifera
number per g sediment
Benthonic foraminifera %
Globigerina %
Globorotalia %
Pull. obliq. %
Sphaer. dehisc. + Sph. bull. %
Orb. univ. %
Radiolaria
specimens per g sediment
C·10⁴
N·10⁵
P2O5·10⁴
Salinity ·10³
100·(log H)
Depth
Σ TiO2, mg/cm²
CaCO3, rate of accumulation
Clay %
Biogenous silica, rate of accumulation
Radiolaria, rate of accumulation
C, rate of accumulation
N, rate of accumulation
P2O5, rate of accumulation

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